

Amendments to the Claims

Listing of Claims

1. (Previously presented) A system for a building system application comprising:

a database;

a data provider interface configured to convert database instructions conforming to a common database access method to database queries conforming to a database application programming interface (API) and to convert database responses to the common database access method; and

an application infrastructure, the infrastructure comprising:

a system design converter configured to convert application definition data into computer statements that implement control logic of application definition data;

a computer tool interface coupled to the system design converter, the computer tool interface configured to provide the system design converter with data from the database through the data provider interface;

an external program module interface coupled to the system design converter, the external program module interface configured to provide the system design converter with external program modules; and

the system design converter being further configured to include the data obtained through the computer tool interface and the external program modules obtained through the external program module interface with the computer statements that implement the control logic of application definition data to generate a building system application.

2. (Previously presented) The system of claim 1 wherein the database is comprised of a plurality of databases.

3. (Previously presented) The system of claim 2, the database being comprised of a real-time database and a data mart.

4. (Previously presented) The system of claim 3, the data mart being configured in one of a snowflake and star data organization.

5. (Previously presented) The system of claim 1, the external program module interface further comprising:

common components configured to support the application generated by the system design converter.

6. (Previously presented) The system of claim 1, the external program module interface comprising:

Web-based components configured to couple the computer statements that implement the control logic of the application definition data to another application over the Internet.

7. (Previously presented) The system of claim 5, the common components further comprising:

operating system communication components configured to couple the computer statements that implement the control logic of the application definition data to another application through an operating system.

8. (Previously presented) The system of claim 7 wherein the operating system communication components communicate through a Windows operating system.

9. (Previously presented) The system of claim 6 wherein the Web-based components couple the computer statements that implement the control logic of the application definition data to another application over the Internet through a customer web portal.

10. (Previously presented) The system of claim 1 further comprising:

a configuration utility configured to develop a file structure representative of a building system and to associate configuration data with components identified in the file structure.

11. (Previously presented) The system of claim 1 further comprising:

a data collector interface configured to couple external data sources to the database.

12. (Previously presented) The system of claim 11 wherein the data collector interface is configured to convert data from a native format for an external data source to a format that is compatible with the database structure.

13. (Previously presented) The system of claim 12 further comprising:

transaction services configured to generate instructions for the database API to store the converted data in the database.

14. (Previously presented) The system of claim 11 further comprising:

a scheduling service configured to activate the data collector interface to interrogate the external data sources for data to be stored in the database.

15. (Previously presented) A method for supporting a building system application comprising:

storing data in a database;

converting application definition data into computer statements that implement control logic of the application definition data;

converting database instructions conforming to a common database access method in the computer statements to database queries conforming to a database application programming interface (API) coupled to the database to enable the instructions conforming to the common database access method to access the database;

converting data responses from the database API to data responses conforming to the common database access method;

obtaining external programs through an external program module interface; and

generating building system applications by incorporating data obtained from the data responses conforming to the common database access method and the external program modules in the computer statements that implement the control logic of the application definition data.

16. (Previously presented) The method of claim 15 wherein the storing of data in the database includes storing the data in a plurality of databases within the database.

17. (Previously presented) The method of claim 15 wherein the storing of data in the database includes storing the data in one of a real-time database and a data mart.

18. (Previously presented) The method of claim 17 further comprising:
 configuring the data mart in one of a snowflake and star data organization.

19. (Previously presented) The method of claim 15 further comprising:
 coupling common components to the computer statements for implementing control logic of application definition data for communication support.

20. (Previously presented) The method of claim 19, the common component coupling comprising:
 coupling the computer statements for implementing control logic of application definition data to another application through a Web-based component for communication over the Internet.

21. (Previously presented) The method of claim 19, the common component coupling comprising:
 coupling the computer statements for implementing control logic of application definition data to another application through an operating system communication component for supporting application communication through the operating system.

22. (Previously presented) The method of claim 21 wherein the operating system common component coupling includes:
 coupling a Window-based communication component to the computer statements for implementing control logic of application definition data.

23. (Previously presented) The method of claim 20 wherein the communication through the Web-based component over the Internet is through a customer web portal.

24. (Previously presented) The method of claim 15 further comprising:
developing a file structure having components representative of a building system; and
associating configuration data with the components identified in the file structure.

25. (Previously presented) The method of claim 15 further comprising:
coupling external data sources to the database.

26. (Previously presented) The method of claim 25 further comprising:
converting data from a native format for an external data source to one that is compatible with the database.

27. (Previously presented) The method of claim 26 further comprising:
generating instructions for the database API to store the converted data in the database.

28. (Previously presented) The method of claim 27 further comprising:
interrogating, on a scheduled basis, a plurality of external data sources for data to be stored in the database.

29. (Withdrawn) A method for processing an application comprising:

- obtaining a list of point types used as inputs for an application from an application definition;

- mapping each point type to an actual control system point name defined in a configuration file; and

- retrieving data for the actual control system point names from a database for processing by the application.

30. (Withdrawn) The method of claim 29, the data retrieval further comprising:

- converting common database access instructions in the application to database access instructions for the database API; and

- converting responses from the database API to common database access responses for application processing.

31. (Withdrawn) The method of claim 30 further comprising:

- generating outputs from the converted responses; and

- delivering the outputs to a user.

32. (Withdrawn) The method of claim 31, the output delivery further comprising:

- posting the outputs for retrieval at a customer web portal.

33. (Withdrawn) The method of claim 31, the output delivery further comprising:

- storing the outputs in the database.

34. (Withdrawn) A system for automatically generating building system application solutions comprising:

a system design verifier for verifying an application definition; and

a system design converter coupled to the system design verifier, the system design converter for converting verified application definitions into computer statements for implementing a building system application solution that corresponds to the application definition.

35. (Withdrawn) The system of claim 34 wherein the system design verifier receives XML files that identify HVAC components and a duct layout for a building system; and

the system design converter converts a verified XML file into engineering application language statements to implement the building system application solution that corresponds to the XML file.

36. (Withdrawn) The system of claim 35 wherein the system design converter generates engineering application language statements in the MATLAB language.

37. (Withdrawn) The system of claim 35 wherein the system design converter generates engineering application language statements in the MATHEMATICA language.

38. (Withdrawn) The system of claim 34 further comprising:

a computer tool interface coupled to the system design converter, the computer tool interface for providing data from computer tools to the system design converter for incorporation within the computer statements that implement the building system application solution that corresponds to the application definition.

39. (Withdrawn) The system of claim 38 wherein the computer tool interface couples at least one of a data organization tool, a data filtering tool, a statistical analysis tool, and an analytical tool to the system design converter.

40. (Withdrawn) The system of claim 39 wherein the data organization tool is a data base management system.

41. (Withdrawn) The system of claim 39 wherein the analytical method tool is a linear programming module.

42. (Withdrawn) The system of claim 39 further comprising:

a data provider interface coupled to the system design converter through the computer tool interface, the data provider for converting between a common database access method and a database application programming interface; and

the data organization tool uses a common database access method to access a database coupled to the data provider.

43. (Withdrawn) The system of claim 34 further comprising:

an external program module interface coupled to the system design converter, the external program module interface for providing modular computer program components to the system design converter for incorporation within the computer statements that implement the building system application solution.

44. (Withdrawn) The system of claim 43 wherein the external program module interface provides a proportional-integral-derivative loop control module to the system design converter.

45. (Withdrawn) A method for automatically generating building system application solutions comprising:

verifying an application definition; and

converting the verified application definition into computer statements for implementing a building system application solution that corresponds to the application definition.

46. (Withdrawn) The method of claim 45 further comprising:

receiving a XML file that identifies HVAC components and a duct layout for a building system; and

converting the verified XML file into engineering application language statements to implement the building system application solution that corresponds to the XML file.

47. (Withdrawn) The method of claim 46, the conversion further comprising:

generating engineering application language statements in the MATLAB language.

48. (Withdrawn) The method of claim 46, the conversion further comprising:

generating engineering application language statements in the MATHEMATICA language.

49. (Withdrawn) The method of claim 45 further comprising:

providing data from computer tools for incorporation within the computer statements that implement the building system application solution that corresponds to the application definition.

50. (Withdrawn) The method of claim 49 further comprising:

coupling at least one of a data organization tool, a data filtering tool, a statistical analysis tool, and an analytical tool to provide data for incorporation within the computer statements implementing the building system application solution.

51. (Withdrawn) The method of claim 50 wherein the data organization tool coupling couples a data base management system for incorporation of data from a database within the computer statements implementing the building system application solution.

52. (Withdrawn) The method of claim 50 wherein the analytical method tool coupling couples a linear programming module for incorporation of data from the linear programming module within the computer statements implementing the building system application solution.

53. (Withdrawn) The method of claim 50 further comprising:

converting between a common database access method and a database application programming interface to access a database.

54. (Withdrawn) The method of claim 45 further comprising:

providing modular computer program components to the system design converter for incorporation within the computer statements that implement the building system application solution.

55. (Withdrawn) The method of claim 54 wherein the modular computer program component provision includes providing a proportional-integral-derivative loop control module for incorporation within the computer statements implementing the building system application solution.